

the elements of the claims. For instance, Applicant cannot find in King or Bradley, among other things, “affixing a face of a semiconductor die to a second side of the adhesive tape” as recited in claims 34, 37 and 38; or “attaching a first side of the adhesive tape to the die attach area of the organic support structure and a second side of the adhesive tape to the die face” as recited in claim 51.

Applicant Comments on Examiner’s Response to Arguments in the Final Office Action

The Examiner’s Response within the Final Office Action appears to maintain that such limitations are inherent in King and/or Bradley because the Examiner states that in “the (a) first art rejection, the electrical and electronic (e.g., chip) components employed by the respective patentees . . . are held to encompass within their scope and definition semiconductor dice.”

Paragraph 8, Office Action. It is respectfully submitted that the assertion amounts to a form of Official Notice, which is timely traversed under MPEP 2144.03.

The Office Action has not established a *prima facie* case of inherency because, as recited in MPEP § 2112, “In relying upon the theory of inherency, the examiner must provide basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art,” citing Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). Applicant can not find any teaching or suggestion in King or Bradley relating to semiconducting dice much less that semiconducting dice necessarily flows from the teaches of King and/or Bradley.

In addition, the Office Action does not provide a basis in fact and/or technical reasoning. Applicant respectfully submits that “affixing a face of a semiconductor die to a second side of the adhesive tape” is technically different from either King or Bradley because King and Bradley relate to surface mount components, which have substantially different processing requirements than those of semiconductor die.

To serve as an anticipation when a reference is silent about the asserted inherent characteristic, the gap in the reference may be filled with recourse to extrinsic evidence. But, such evidence must make clear that “the missing descriptive matter is necessarily present in the

thing described in the reference, and that it would be so recognized by persons of ordinary skill.” *Continental Can Co. v. Monsanto Co.*, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). Applicant respectfully submits that the Examiner has not produced extrinsic evidence to show that the element “affixing a face of a semiconductor die to a second side of the adhesive tape” as recited in claims 34, 37 and 38 and “attaching a first side of the adhesive tape to the die attach area of the organic support structure and a second side of the adhesive tape to the die face” as recited in claim 51 is necessarily present in King and/or Bradley.

Claims 52-63 depend from claim 51. Therefore, claims 52-63 incorporate all of the limitations of claim 51.

Reconsideration and allowance of claims 34, 37-38 and 51-63 is respectfully requested.

Applicant Comments on Examiner’s Response to Arguments in the Advisory Office Action

The Examiner states at page 2 of the Advisory Action:

“It is reiterated (N.B. paragraph 8 of the Final Rejection) that the “electrical” and “electronic” (e.g., “chip”) components employed by the respective patentees KING (and NOT CHING as mistakenly set forth) and BRADLEY encompass within their scope and definition semiconductor dice (the elements envisioned for use by applicants); further, the foregoing (ie parenthesized) terminology would fairly and clearly suggest this to those of ordinary skill in this art;”

Applicant again respectfully traverses this assertion. Applicant can not find in King or Bradley any teaching or suggestion that the electronic components in King and Bradley encompass semiconducting die. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP § 2143. There is no description in King or Bradley relating to semiconducting die such that Applicant can not see how King and Bradley encompass semiconducting die.

Applicant respectfully reiterates that King and Bradley relate to surface mount components, which have substantially different processing requirements than those of semiconductor die. Therefore, it appears that King and Bradley do not provide any teaching or

suggestion that would enable one of ordinary skill to perform “affixing a face of a semiconductor die to a second side of the adhesive tape” as recited in claims 34, 37 and 38 and “attaching a first side of the adhesive tape to the die attach area of the organic support structure and a second side of the adhesive tape to the die face” as recited in claim 51. In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983); *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985); MPEP § 2141.02.

The Examiner additionally states:

“... still further regarding (and in support of) the foregoing, N.B. col. 1 lines 13-16 of the TSUKAGOSHI et al reference (copy attached as a part of this action), cited in accordance with the instructions and provisions of MPEP 2144.03.”

Applicant also respectfully traverses this assertion and respectfully requests the Examiner to cite a reference other than Tsukagoshi because it appears that Tsukagoshi relates to forming an adhesive directly on electronic components (see Abstract and columns 6-8 of Tsukagoshi). Therefore, Tsukagoshi does not provide any teaching or suggestion relating to “affixing a face of a semiconductor die to a second side of the adhesive tape” as recited in claims 34, 37 and 38; and “attaching . . . a second side of the adhesive tape to the die face” as recited in claim 51.

Applicant notes that the Examiner is taking Official Notice of elements in claims 34, 37, 38 and 51 which are not found in Baker, Kotato and/or Tsukagoshi. Applicant respectfully traverses this Official Notice and requests the Examiner to either 1.) cite references besides Baker, Kotato or Tsukagoshi in support of his position pursuant to M.P.E.P. § 2144.03, or 2.) submit an affidavit as required by 37 C.F.R. § 1.104(d)(2) to support his position.

Claims 35-36 were rejected under 35 USC § 102 (b) as being anticipated by or, in the alternative, under USC 103 (a) as obvious over Tsukahara. Applicant hereby incorporates by reference all arguments relating to this rejection that were made in the Response which was mailed October 17, 2001. Applicant respectfully traverses the rejection since the cited art fails to establish all of the elements of the claims. Applicant cannot find in Tsukahara "affixing a first side of tape including a first material of high glass transition temperature and a second material of low glass transition temperature" as recited in claim 35. Furthermore, Applicant cannot find in Tsukahara "affixing a first side of tape including a hybrid material having a thermoset component with a glass transition temperature of approximately 30 degrees C" as recited in claim 36.

Applicant Comments on Examiner's Response to Arguments in the Final Office Action

The Examiner's Response within the Final Office Action states with regard to Tsukahara that "the teaching of this patentee (Tsukahara) is seen to be consistent and in agreement with page 14, line 15 thru page 15 line 4 of applicants' specification." Applicant traverses the assertion and is unsure as to the Examiner's reasoning for making the statement since not all of the recited elements of the claims are found in Tsukahara. Applicant respectfully requests that the Examiner *identify with particularity* where Tsukahara teaches or suggests "affixing a first side of tape including a first material of high glass transition temperature and a second material of low glass transition temperature" as recited in claim 35, and "affixing a first side of tape including a hybrid material having a thermoset component with a glass transition temperature of approximately 30 degrees C" as recited in claim 36 instead of citing Applicant's own disclosure.

Since all the elements of the claim are not found in the reference, Applicant assumes that the Examiner is taking official notice of the missing elements. Applicant respectfully objects to the taking of official notice with a single reference obviousness rejection and, pursuant to M.P.E.P. § 2144.03, Applicant respectfully traverses the assertion of Official Notice and requests that the Examiner cite references in support of this position.

Claim 39 was rejected under 35 USC § 102 (b) as being anticipated by or, in the alternative, under USC 103 (a) as obvious over either Baker et al. or Kotato et al. Applicant respectfully traverses the rejection since the cited art fails to establish all of the elements of amended claim 39. Applicant cannot find in Baker the combination of “elevating the temperature to 100 degrees C to activate the first side of the adhesive tape; applying pressure to the tape and organic support structure to laminate the adhesive tape to the organic support structure; affixing a face of the semiconductor die to a second side of the adhesive tape; elevating the temperature of the tape to activate the second side of the adhesive tape; and applying pressure to the die and organic support structure to laminate the adhesive tape to the die” as recited in amended claim 39. Applicant respectfully submits that Baker teaches away from such a combination of elements (see, e.g., Baker at column 5, line 46 through column, 6 line 27).

In addition, Applicant cannot find in Kotato “affixing a first side of a two-sided adhesive tape to a surface of the organic support structure, wherein adhesive of the adhesive tape comprises a hybrid thermoplastic and thermosetting adhesive” as recited in amended claim 39.

Applicant submits the cited references fail to anticipate or render obvious amended claim 39 as a whole. Reconsideration and allowance of claim 39 is respectfully requested.

§103 Rejection of the Claims

Claims 40-50 were rejected under 35 USC § 103(a) as being unpatentable over either Baker et al. or Kotato et al., each in view of the prior art admission. Applicant respectfully traverses the rejection.

Claims 40 - 43

As stated above, Applicant cannot find in Baker the combination of “elevating the temperature to 100 degrees C to activate the first side of the adhesive tape; applying pressure to the tape and organic support structure to laminate the adhesive tape to the organic support structure; affixing a face of the semiconductor die to a second side of the adhesive tape; elevating the temperature of the tape to activate the second side of the adhesive tape; and applying pressure to the die and organic support structure to laminate the adhesive tape to the die” as recited in

claim 39, from which claims 40 - 43 depend. Additionally, Applicant cannot find in Kotato “affixing a first side of a two-sided adhesive tape to a surface of the organic support structure, wherein adhesive of the adhesive tape comprises a hybrid thermoplastic and thermosetting adhesive,” as recited in claim 39, from which claims 40 - 43 depend. Applicant respectfully requests allowance of claims 40 - 43 for the reasons provided above with regard to claim 39.

Claims 44 - 50

Applicant respectfully traverses the rejection since the cited art fails to establish all of the elements of amended claim 44. Applicant cannot find in Kotato or Baker “affixing a first side of a two-sided adhesive tape to a surface of the organic support structure, wherein adhesive of the adhesive tape comprises a hybrid material of thermoplastic and thermosetting adhesive” as recited in amended claim 44.

In addition, Applicant cannot find in Baker the combination of “elevating the temperature of the tape to activate the first side of the adhesive tape; applying pressure to the tape and organic support structure to laminate the adhesive tape to the organic support structure, wherein elevating the temperature and applying pressure occurs for 100ms; affixing a face of the semiconductor die to a second side of the adhesive tape; elevating the temperature of the tape to activate the second side of the adhesive tape; applying pressure to the die and organic support structure to laminate the adhesive tape to the die;” as recited in claim 44.

Applicant submits the cited references fail to anticipate or render obvious the claim 44 as a whole. Claims 45-50 are depend from claim 44, and as such incorporate all of the limitations of claim 44. Therefore, claims 45-50 are allowable for the reasons provided above with regard to amended claim 44. Reconsideration and allowance of claims 44-50 is respectfully requested.

Applicant Comments on Examiner’s Response to Arguments in the Final Office Action

The Examiner’s Response to Applicant’s Arguments within the Final Office Action relating to Claims 39-50 states:

“the third and fourth rejections, the processing and/or laminating conditions (viz. P, T (to include activation and bonding) and t) are held to be well within the purview of those of ordinary skill in this art to determine an effect to achieve the

desired result (viz. satisfactory bonding), dependent upon the adhesive and substrate materials employed etc.”

Applicant respectfully submits that there is no support for this statement and no reference is cited to support this assumption. The statement is also subjective and conclusory because it is analogous to those made by the Examiner and Board in *In re Sang Su Lee*, 277 F.3d 1338 (Fed. Cir. 2002). Applicant notes that the Examiner is taking Official Notice of elements in claims 39-50 which are not found in the combination cited. Applicant respectfully traverses this Official Notice and requests the Examiner to either 1.) cite references in support of this position pursuant to M.P.E.P. § 2144.03, or 2.) submit an affidavit as required by 37 C.F.R. § 1.104(d)(2) to support his position.

The Examiner also states “it is noted that . . . (2) none of the limitations has been disregarded.” Applicant respectfully traverses the assertion and asks the Examiner to cite with particularity where Kotato or Baker teach or suggest each element in claims 39-50.

Reservation of Right to Swear Behind References

Some of the references cited by the Examiner belong under 35 U.S.C. §102(e) since the patents issued after the priority date of the present patent application (i.e., January 11, 1999), and as such are removable references if the applicant produces an affidavit swearing a date of invention which is earlier than the effective U.S. filing date of patents. Applicant does not admit that the patents are prior art to the present invention. However, Applicant chooses at this time to merely distinguish the patents and reserves the right to swear behind the patents at a later date.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney, Andrew Peret at 262-646-6560, to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

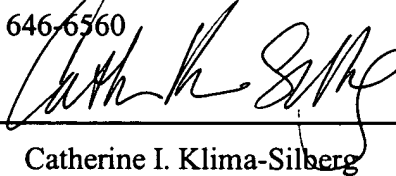
Respectfully submitted,
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Aug 9, 2002

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Box RCE, Commissioner of Patents, Washington, D.C. 20231, on this 9th day of August 2002.

Name

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